

X-RAY CHEMICAL IMAGING IN SCANNING AND PROJECTION MODES IN THE LABORATORY

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XRF imaging is a powerful tool to provide information about the chemical composition and elemental distribution of a specimen. XRF images were conventionally obtained by using a micro-XRF spectrometer, which requires scanning a sample. Faster XRF imaging would be achieved by eliminating the process of sample scanning. Thus, we have studied an XRF imaging instrument without sample scanning by using polycapillary x-ray optics, which had energy filter characteristics caused by the energy dependence of the total reflection phenomenon. We showed that two independent straight polycapillary x-ray optics could be used as an energy filter of x-rays for x-ray fluorescence[1,2]. Only low energy x-rays were detected when the angle between two optical axes was increased slightly. Energy-selective XRF images with projection mode were taken by using an x-ray CCD camera equipped with two polycapillary optics. In addition, a new two dimensional x-ray dispersive optics will be introduced as well as recent results obtained by a conventional scanning-mode XRF imaging technique[3].

References

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